



**IIT** INDIAN  
INSTITUTE OF  
TECHNOLOGY  
BANARAS HINDU UNIVERSITY



**State Water & Sanitation Mission**

NAMAMI GANGE AND RURAL WATER SUPPLY DEPARTMENT  
( GOVERNMENT OF UTTAR PRADESH )



**HORIZON 2020**



**AIWC**

## **Short Term Training/ Orientation Program on Source Sustainability of Groundwater Extraction under Jal Jeevan Mission**

**Organized by**

**Department of Civil Engineering  
IIT (BHU) Varanasi – 221005**

**Period:** December 9-13, 2024

**Venue:** Seminar Hall, Department of Civil Engineering, IIT (BHU) Varanasi

**Target Audience:**

- Field engineers working in Water Supply/Jal Jeevan Mission
- Duration: 5 days

**Outline of Broad Thematic Areas:**

### **Day 1: Introduction to Groundwater and JJM**

- Groundwater: Definition, importance, and challenges
- Groundwater and the water cycle: Understanding the interconnectedness of water resources
- Overview of Jal Jeevan Mission (JJM): Objectives, strategies, and implementation
- Role of groundwater in JJM: Ensuring sustainable water supply for rural communities

### **Day 2: Groundwater Extraction and Sustainability**

- Groundwater extraction methods: Wells, tube wells, and pumping technologies
- Sustainable groundwater yield: Concepts and assessment methods
- Impact of over-extraction: Water table depletion, land subsidence, and water quality degradation
- Balancing extraction and recharge: Ensuring long-term groundwater availability

**Convener** : Prof. Prabhat Kumar Singh

**Co-Conveners:** Dr. Shishir Gaur and Dr. Anshuman Satpathy

**Student Co-ordinator:** Mr. Abhijit Debnath; Mr. Ankit Tewari

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### **Day 3: Groundwater Recharge and Source Sustainability**

- Groundwater recharge processes: Natural and artificial recharge methods
- Rainwater harvesting and artificial recharge techniques: Check dams, percolation tanks, and other structures
- Community-based groundwater recharge: Engaging local communities in source sustainability
- Watershed management and source protection: Conserving water resources and preventing pollution

### **Day 4: Participatory Groundwater Management (MARVI)**

- Community engagement and awareness: Building partnerships for sustainable water management
- Village Groundwater Cooperatives (VGCs): Formation, roles, and responsibilities
- Water budgeting and planning: Developing community-based water security plans
- Conflict resolution and water governance: Addressing water-related disputes and ensuring equitable access
- Field Visit/ Case Studies of
  1. Successful groundwater recharge or management project
  2. Case studies of community-based groundwater management initiatives
  3. Discussions and experience-sharing

### **Day 5: Groundwater Quality and Monitoring**

- Groundwater quality parameters: Physical, chemical, and biological indicators
- Groundwater pollution: Sources, impacts, and prevention
- Groundwater monitoring techniques: Water level measurement, sampling, and analysis
- Data management and interpretation: Using technology for effective monitoring

### **Training Methodology:**

- Classroom lectures and presentations
- Interactive group discussions and exercises
- Hands-on training in groundwater monitoring and recharge techniques
- Field visit and exposure to real-world project implementation
- Case studies and problem-solving scenarios

### **Assessment and Certification:**

- Pre- and post-training assessments to evaluate learning outcomes
- Certificate of completion awarded upon successful participation and assessment

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